

## **SAVANNAH RIVER BASIN COMPREHENSIVE RECONNAISSANCE STUDY**

**1. STUDY AUTHORITY.** The U.S. Army Corps of Engineers (USACE), Savannah District, is conducting a Savannah River Basin Comprehensive Study (SRBC), as outlined in the Water Resources Development Act of 1996, Section 414 (Public Law 104-303). The SRBC shall address the current and future needs for flood damage prevention and reduction, water supply, and other related water resource needs in the Savannah River Basin. The scope of the study shall be limited to an analysis of water resources issues that fall within the traditional civil works mission of the USACE. In addition, the study will be coordinated with the Environmental Protection Agency (EPA) and the ongoing Savannah River Basin Watershed Project (SRBWP) being conducted by the Agency of the Savannah River Basin.

**2. STUDY PURPOSE.** The purpose of this expedited reconnaissance study is to identify water reallocation issues in the Savannah River Basin and evaluate the extent of Federal interest in locally cost shared feasibility studies for water resource needs, as identified in Enclosures 1-7 of this report. Because the current allocations and designated uses of the Federal reservoirs in the Savannah River Basin are now outdated, there is a need for a comprehensive reevaluation of upstream and downstream uses and requirements. Such a comprehensive water resources study would include the development of an updated plan addressing current and future needs in the basin, examine reallocation of storage at Corps of Engineers multi-purpose projects, and develop a better management structure to address basin water resources issues, including environmental restoration opportunities.

**3. LOCATION OF PROJECT/CONGRESSIONAL DISTRICT.** The project area consists of the main stem of the Savannah River Basin which includes all or portions of 44 counties within Georgia, South Carolina and North Carolina (Figure 1). The surface area of the basin is comprised of approximately 10,577 square miles, of which approximately 5,821 are in Georgia; 4,581 square miles are in South Carolina; and 175 square miles lie in North Carolina (Figure 2).

The senators in Georgia are Honorable Max Celand and Honorable Paul Coverdale and those in South Carolina are Honorable Strom Thurmond and Honorable Fritz Hollings. Table 1 displays the representatives of the congressional districts within the basin area.

**Table 1. Congressional Districts and Representatives in Savannah River Basin**

<i>State</i>	<i>Congressional District</i>	<i>Representative</i>
Georgia	1	Jack Kingston
	9	Nathan Deal
	10	Charlie Norwood
	11	John Linder
South Carolina	2	Floyd Spence
	3	Linsey Graham

The 1998 population estimate of the portions of the counties within the study area is 1.08 million, with the majority located in Georgia (637,310 people). The city of Savannah, located in Chatham County in Georgia, is the largest municipality in the study area, with an estimated population of 136,262 as of 1996. The city of Augusta, located in Richmond County in Georgia, had a 1996 estimated population of 41,783. Augusta is situated in the central portion of the basin and is the largest city in the study area.

Due to the differing types of issues facing the upper and lower portions of the basin, the Savannah River Basin water issues are separated into the upper region and the lower region. The upper region is comprised of the city of Augusta and the basin area north of Augusta, and is characterized by urban areas, recreation developments and farming centers. The lower region consists of the area south of Augusta and is characterized by sparsely populated areas, wetlands and agricultural uses.

**4. DISCUSSION OF PRIOR STUDIES, REPORTS, AND EXISTING WATER PROJECTS.** This study is based on existing studies and analyses which have been conducted for the SRBC and the Savannah River Basin Watershed Project (SRBWP). The SRBWP was initiated in 1993 by the Environmental Protection Agency (EPA) with its goal being to implement a multi-agency environmental protection project that incorporates the authorities and expertise of all interested stakeholders in the future management and protection of the Savannah River Basin's resources. This effort is still ongoing and involves a number of basin stakeholders.

The SRBWP's direction is established by the Policy Committee, but also includes seven other committees. These are the Management Committee and six Resource Management Committees for the following resources: Water Quality, Fish & Wildlife, Recreation & Cultural Resources, Water Quantity/Navigation/Hydropower, Land Use & Wetlands, and Industry & Economic Development. Each Resource Committee has developed a Baseline Assessment of their assigned resource; these Baseline Assessments can be found in Volume 2 of the Management Committee's Report (EPA, 1995).

The Policy Committee is working with various action teams to develop and implement a Watershed Strategy (EPA, 1997) to address 26 priority issues of the basin that were identified by the Management Committee (EPA, 1995). At least nine of these issues have been linked to the Corps SRBC study as a possible means by which to address and resolve these issues. The SRBWP supported the SRBC study, and the USACE, Savannah District, has been an active participant in the SRBWP. The following is a list of reports and studies which were used to develop the scope for this study:

An Assessment of Issues Affecting the Savannah River Basin. Prepared for the USACE, Savannah District and Strom Thurmond Institute, Clemson University, 1992.

Economic Impact Analysis as a Tool in Recreation Program Evaluation. USACEWES, Environmental Laboratory, Department of Park and Recreation Michigan State University, USDA Forest Service, Timber/Land Management Planning Staff. 1992.

Savannah River Basin Drought Contingency Plan. U.S. Army Corps of Engineers, Savannah District, 1989.

Savannah River Basin Watershed Project, Initial Assessment and Prioritization Report for the Savannah River Basin. Volume 1. Management Committee of the Savannah River Basin Watershed Project, 1995.

Savannah River Basin Watershed Project, Initial Assessment and Prioritization Report for the Savannah River Basin. Volume 2. Management Committee of the Savannah River Basin Watershed Project, 1995.

Savannah River Basin Watershed Project, Watershed Implementation Strategy for the Savannah River Basin. Policy Committee of the Savannah River Basin Watershed Project, 1997.

Savannah River Basin Georgia, South Carolina, and North Carolina, Water Resources Management Study, Preliminary Basin Assessment. U.S. Army Corps of Engineers, Savannah District, 1990.

**5. PLAN FORMULATION.** Through a review of existing documents and conversations with the Federal and non-Federal sponsors, seven broad categories have been identified as having the potential for feasibility studies. Recognizing that these issues have been identified in the past, this Reconnaissance Study is concentrating on re-validating these issues and developing detailed study plans for future feasibility studies. Table 2 summarizes the seven categories. They are as follows: water supply allocations, flood control, hydropower, water quality, fish and wildlife issues, aquatic plant control, and recreation issues. Each is discussed in the attached Enclosures 1-7.

Many of these issues stem from the successive droughts of the 1980's which brought about new concerns over water usage throughout the basin. An important area of concern is the need for additional water supply. The continued, drought-induced drawdown prompted concerns about providing more stable pool levels for recreation, while causing heightened concerns over water quality in the lower Savannah River. Furthermore, hydropower customers face curtailment of power production during these drought conditions.

The present reservoir operations represent a balance of storages and releases which provide maximum hydropower generation while maintaining conservation pool levels and providing releases which meet downstream water supply and water quality needs. However, there are additional concerns, including the need for additional water supply storage for upper basin

and developing downstream users, for boosting low flows during droughts, and for generating "flushing" flows for the lower river basin wetlands and bottomland hardwoods. With the redefining of the 100-year flood discharge level at Augusta, the use of flood control storage in the reservoir projects needs to be revisited.

**Table 2. Summary of Issues to be Evaluated in Feasibility Studies**

<b>Upper Basin Needs vs. Downstream Needs</b>
<b>Water Supply Allocations</b> <ul style="list-style-type: none"> <li>• Lake Levels for Recreation/Commercial Activities</li> <li>• In-lake reallocations</li> <li>• Downstream In-River Allocations</li> <li>• Groundwater Cap/Future Coastal Supply</li> <li>• Future Demands</li> <li>• Inter-basin Transfers</li> </ul>
<b>Flood Control</b> <ul style="list-style-type: none"> <li>• Flood Control Below J. Strom Thurmond Lake</li> <li>• Storage Reduction</li> <li>• Flood Plain Mitigation</li> </ul>
<b>Hydropower</b> <ul style="list-style-type: none"> <li>• Maintain or Modify Current Levels</li> <li>• Regional Affects of Reallocations</li> </ul>
<b>Water Quality and Flow</b> <ul style="list-style-type: none"> <li>• Discharge Permits and Droughts</li> <li>• Saltwater Intrusion</li> <li>• DO Impacts in Savannah Harbor</li> <li>• Impacts to Lake WQ from Development</li> </ul>
<b>Fish and Wildlife</b> <ul style="list-style-type: none"> <li>• Estuarine Issues</li> <li>• Instream Flow Requirements</li> <li>• Lake Issues</li> <li>• Wetland Impacts</li> </ul>
<b>Aquatic Plant Control</b> <ul style="list-style-type: none"> <li>• Instream</li> <li>• In Lake</li> </ul>
<b>Recreation</b> <ul style="list-style-type: none"> <li>• Lake Levels for Recreation/Commercial Activities</li> <li>• Regional Economic Value of Recreation</li> </ul>

**6. FISH AND WILDLIFE PLANNING AID REPORT.** The planning aid report evaluates existing fish and wildlife resources within the Savannah River Basin study area and identifies problems, opportunities, and planning objectives for these resources.

The extensive forested wetlands of the Savannah River below Augusta are important habitat to many significant commercial and recreational fish and wildlife species, as well as to endangered and threatened plants and animals. These wetlands are also important for flood control and purification, soil enrichment, erosion control, and support for downstream fishing. By modifying the natural flow regime, reservoir construction in the Piedmont has caused loss and degradation of forested wetlands and aquatic habitat along the lower Savannah River. The Corps' actions in the lower river, dredging and placement of pile dikes associated with construction and maintenance of the navigation channel to Augusta, have also affected the hydrological conditions in the forested wetlands and aquatic habitat. Reservoir construction also has blocked passage of anadromous fish to historic spawning grounds.

The U.S. Fish and Wildlife Service has recommended eight studies and actions to address the problems identified in the Savannah River Basin Project. The Corps have responded to these recommendations and stated how they will be addressed. The Corps responses follow the U.S. Fish and Wildlife recommendations

1. In conjunction with fish and wildlife agencies and other stakeholders, determine and implement a Savannah River flow regime that provides for diverse and productive fish and wildlife habitat. The flow regime evaluation should include determination of the quantity, duration and periodicity of flows needed to support aquatic and wetland functions.

Comment: The Corps will ensure this activity is included in the SRB Comprehensive Study Feasibility study.

2. Evaluate the potential to reduce salinity intrusion in Savannah Harbor, and restore tidal freshwater marsh and striped bass habitat, by modifying management and operation of J. Strom Thurmond Reservoir.

Comment: This activity will be addressed under the Savannah Harbor Ecosystem Restoration Study. Should the results of that study indicate that releases from J. Strom Thurmond would be necessary, the effects of that release would be address with in the SRB Comprehensive Study.

3. Evaluate the extent and impact of development in the Savannah River flood plain subsequent to construction of Corps flood control projects.

Comment: The Corps will ensure this activity is included in the SRB Comprehensive Study Feasibility study.

4. Do not conduct any dredging maintenance activities on the Savannah to Augusta navigation project and seek deauthorization of this navigation project.

Comment: The Corps is currently reviewing the status of the New Savannah Bluff Lock & Dam under Section 216 Authority. Upon completion of that study we will review the need to act further as suggested by FWS.

5. In conjunction with fish and wildlife agencies, determine need for further restoration action on cutoff bends.

Comment: The reconnaissance report for the Lower Savannah River Basin Study examined a number cutoff bends, and recommended some level of action for a number of these. Subject to identification and willingness to cost-share in feasibility studies, the authority of the Lower Savannah River Basin Study still remains open.

6. Continue to ensure anadromous fish passage at New Savannah Bluff Lock and Dam using lock operations or upstream flow releases. Evaluate removal of this obstruction to anadromous fish. Ensure that fish passage is continued if the disposition study leads to a new lock and dam manager.

Comment: The Corps is currently reviewing the status of the New Savannah Bluff Lock & Dam under Section 216 Authority, to include anadromous fish passage.. Upon completion of that study we will review the need to act further as suggested by FWS.

7. Improve water quality, particularly dissolved oxygen level, below J. Strom Thurmond Dam.

Comment: The Corps is currently designing DO enhancing means in the turbine rehabs for JST. Upon operation we will review the need for further residual measures.

8. Evaluate instream flow impacts of surface water withdrawal in the piedmont region of the basin.

Comment: The Corps; will ensure this activity is included in the SRB Comprehensive Study Feasibility study.

**7. FEDERAL INTEREST.** Changing water needs in the 44 county study area over the past 50 years provides the necessary justification for reevaluation of the functions of the Savannah River Basin projects, such as Hartwell, Russell and Thurmond Lakes. Many of the problems in the basin today were not relevant and were not considered when these projects were originally formulated. Just in the past 10 years, population growth in the basin area and resulting increases in demand for various water resources has increased the need for further study to ensure that the projects best serve current and future needs. Population growth in the study area increased 11 percent from 1990 to 1998 and is projected to increase another 16 percent through the year 2010.

**8. PRELIMINARY FINANCIAL ANALYSIS.** A letter of intent from the Georgia Department of Natural Resources and the South Carolina Department of Natural Resources is included (Enclosure 8).



**9. RECOMMENDATIONS.** It is recommended that the Georgia Department of Natural Resources, the South Carolina Department of Natural Resources and the USACE, Savannah District proceed to the feasibility phase. Prior to conducting feasibility studies, a Project Study Plan (PSP) will be prepared. The PSP will include cost estimates of feasibility studies for the various water use issues presented herein and the Federal cost sharing breakdowns will be discussed.

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Joseph K. Schmitt  
Colonel, U.S. Army  
Commanding